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IS : 6838 - 1973

(Reaffirmed 1979)

पुनर्विष्ट १९९०

“REAFFIRMED 1990”

Indian Standard
DIMENSIONS FOR
‘O’ RINGS AND GROOVES FOR
VACUUM FLANGES

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Indian Standard

DIMENSIONS FOR 'O' RINGS AND GROOVES FOR VACUUM FLANGES

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(Continued on page 2)

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(Continued on page 7)

Indian Standard

DIMENSIONS FOR 'O' RINGS AND GROOVES FOR VACUUM FLANGES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 13 February 1973, after the draft finalized by the Chemical Engineering Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 This standard has been prepared to cover the dimensions for 'O' rings used in sealing vacuum flanges. The dimensions of suitable grooves for accommodating 'O' rings are also specified.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies the dimensions of 'O' rings used for sealing vacuum flanges conforming to IS : 6076-1971†. It also specifies dimensions of grooves to be machined on flanges for accommodating the 'O' rings.

2. 'O' RINGS

2.1 Dimensions — The recommended dimensions for 'O' rings shall be as given in Table 1.

2.2 Shore Hardness — The recommended shore hardness of 'O' rings shall be 65 ± 5 .

*Rules for rounding off numerical values (*revised*).

†Dimensions for vacuum flanges.

3. GROOVES

3.1 Types — The grooves to be machined on vacuum flanges for receiving 'O' rings shall be of the following types:

- a) Rectangular,
- b) Trapezium,
- c) Dovetail, and
- d) Inverted dovetail.

3.2 Dimensions — The dimensions of various types of grooves shall be as given in Tables 2, 3 and 4.

TABLE 1 'O' RINGS FOR BOLTED VACUUM FLANGES

(Clause 2.1)

All dimensions in millimetres.

DESIGNATION	INTERNAL DIAMETER	CROSS-SECTIONAL DIAMETER				*SUITABLE FOR FLANGE OF NOMINAL BORE
		Rectangu- lar	Trapezium	Dovetail	Inverted Dovetail	
OR10	22.0	2.5	2.5	2.5	2.5	10
OR16	26.5	3.5	3.5	2.5	2.5	16
OR20	31.0	3.5	3.5	2.5	2.5	20
OR25	38.0	3.5	3.5	2.5	2.5	25
OR32	44.5	3.5	3.5	3.5	3.5	32
OR40	55.5	3.5	3.5	3.5	3.5	40
OR50	63.0	5.5	5.5	3.5	3.5	50
OR63	82.0	5.5	5.5	3.5	3.5	63
OR80	98.0	5.5	5.5	3.5	3.5	80
OR100	116.0	7.0	7.0	3.5	3.5	100
OR125	139.0	7.0	7.0	5.5	5.5	125
OR160	164.5	7.0	7.0	5.5	5.5	160
OR200	225.0	7.0	7.0	5.5	5.5	200
OR250	275.0	7.0	7.0	5.5	5.5	250
OR320	354.0	9.5	9.5	7.0	7.0	320
OR400	432.0	9.5	9.5	7.0	7.0	400
OR500	522.0	9.5	9.5	9.5	9.5	500
OR630	662.0	13.0	13.0	9.5	9.5	630
OR800	832.0	13.0	13.0	9.5	9.5	800
OR1 000	1 032.0	13.0	13.0	9.5	9.5	1 000

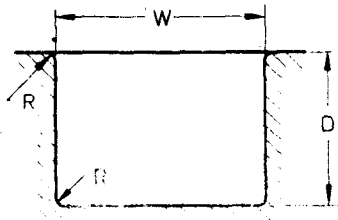
NOTE — The trapezium and inverted dovetail grooves are recommended wherever positive retention of 'O' rings is needed. The 'O' rings for use with bolted flanges and screwed unions shall have a tolerance of ± 0.1 mm on sectional diameter.

*Flanges according to IS : 6076-1971 'Dimensions for vacuum flanges'. Preferred sizes are shown in bold.

TABLE 2 DIMENSIONS OF RECTANGULAR GROOVES

(Clause 3.2)

All dimensions in millimetres.

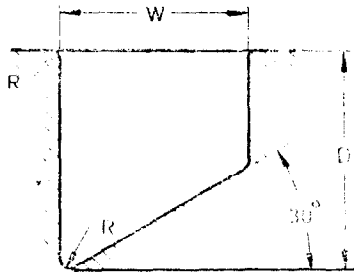
 $R = 0.13 \text{ to } 0.5$

CROSS-SECTIONAL DIAMETER	<i>W</i>	<i>D</i>
	<i>Max</i>	<i>Max</i>
2.5	2.75	2.00
3.5	3.85	2.80
5.5	6.05	4.40
7.0	7.70	5.60
9.5	10.45	7.60
13.0	14.30	10.40

TABLE 3 DIMENSIONS OF TRAPEZIUM GROOVES

(Clause 3.2)

All dimensions in millimetres.

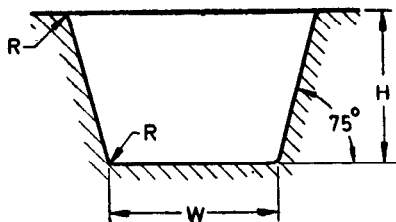
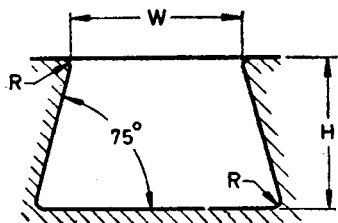
 $R = 0.13 \text{ to } 0.5$

CROSS-SECTIONAL DIAMETER	<i>W</i>		<i>D</i>	
	<i>Max</i>	<i>Min</i>	<i>Max</i>	<i>Min</i>
2.5	2.47	2.39	2.87	2.80
3.5	3.47	3.36	4.01	3.91
5.5	5.47	5.30	6.24	6.08
7.0	6.97	6.76	8.02	7.81
9.5	9.47	9.18	10.87	10.59
13.0	12.97	12.58	14.87	14.48

TABLE 4 DIMENSIONS OF DOVETAIL AND INVERTED DOVETAIL GROOVES

(Clause 3.2)

All dimensions in millimetres.



$R = 0.13 \text{ to } 0.5$

DOVETAIL

INVERTED DOVETAIL

CROSS-SECTIONAL
DIAMETER

H
 $_{Max}$

W
 $_{Max}$

2.5

2.0

2.25

3.5

2.8

3.15

5.5

4.4

4.95

7.0

5.6

6.30

9.5

7.6

8.55

13.0

10.4

11.70

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